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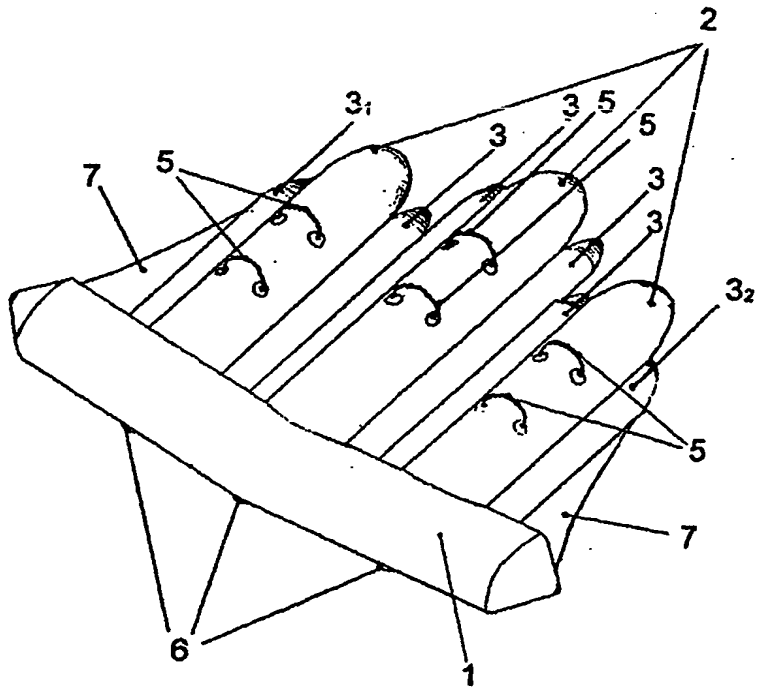
(54) Title: TOWABLE NAUTICAL DEVICE FOR LEISURE SPORT

(54) Titre: DISPOSITIF NAUTIQUE TRACTABLE POUR SPORT DE LOISIRS

(57) Abstract

The invention concerns a towable non–powered nautical device lifted at the front when pulled and sometimes altogether lifted out of the water for practising an aquatic leisure sport. The invention concerns a nautical device capable of carrying several persons. It consists of: a front inflatable structure (1) equipped in its lower part with an element enabling it to be towed (6), at least two inflatable elongated secondary structures (2), at least an inflatable elongated tertiary structure (3, 3_1, 3_2), retaining means (5) for passengers standing, seated, lying down or astride on the secondary structure(s), on each side of a flexible lateral skirt (7).



(57) Abrégé

Dispositif nautique non motorisé tractable se soulevant de l'avant en traction et quittant par instant l'élément liquide pour la pratique d'un sport de loisir aquatique. L'invention concerne un dispositif nautique capable de supporter plusieurs personnes. Il est constitué: d'une structure gonflable frontale (1) équipée sur sa partie basse d'un dispositif permettant le tractage (6), d'au moins deux structures secondaires (2) allongées gonflables, d'au moins une structure tertiaire (3, 3_1, 3_2) allongée gonflable, de moyens de maintien (5) des passagers pour tenir debout, allongés, assis ou à cheval sur la ou les structures secondaires, de chaque côté d'une jupe latérale (7) souple.

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DISPOSITIF NAUTIQUE TRACTABLE POUR SPORT DE LOISIRS

La présente invention concerne un dispositif nautique non motorisé tractable et de façon préférentielle gonflable pouvant quitter par instant l' élément liquide, et procurant des sensations spécifiques, pour la pratique d'un sport de loisir aquatique collectif.

Certains dispositifs nautiques non motorisés tractables et gonflables traditionnellement longiformes, donnent uniquement la possibilité aux passagers placés les uns derrière les autres, de suivre le mouvement des vagues.

Le dispositif nautique selon l'invention permet aux passagers placés les un derrières les autres et/ou côtes à côtes d' avoir des sensations nouvelles spécifiques à l' invention, en effet le dispositif nautique suivant la vitesse de traction se cabre par l'avant de plus en plus à la vertical de l' élément liquide bondit par instant de vagues en vagues et quitte par instant l' élément liquide, il comporte selon une première caractéristique, une structure gonflable frontale, appelées Structure Frontale(fig1)(1) notamment de forme plus ou moins cylindrique en néoprène Hypalon, ou toutes autres matières permettant d'aboutir aux mêmes finalités, incorporant perpendiculairement au moins deux structures gonflables de formes plus ou moins cylindriques appelées Structures Secondaires(2).

La présente invention concerne un dispositif non motorisé tractable se soulevant de l' avant en traction et quittant par instant l' élément liquide pour la pratique d' un sport de loisir, aquatique à sensations caractérisé en ce qu'il comprend essentiellement :

-une structure de façon préférentielle gonflable(fig1)(1) allongée uniquement frontale de direction principale perpendiculaire à la direction de déplacement,

- au moins deux structures secondaires(2) allongées gonflables solidarisée du côté intérieur de la structure frontale par une des extrémités des structures secondaires(2) à la structure frontale(1) sans être solidarisées aux extrémités fermées de la structure frontale qui débouche sur les côtés,

- au moins une structure(s) tertiaire(s)(3)(3_1)(3_2) allongée(s) gonflable(s) ou non de section transversale inférieur à celles des structures secondaires(2) reliant les structures secondaires(2) de façon parallèle afin de donner une flottabilité maximale , le(s) structure(s) tertiaire(s) pouvant être optionnellement juxtaposée(s) ensemble par groupe(s), pour relier les structures secondaires,

- des moyens de maintien de(s) passager(s) (5)

- les structures secondaires(2) et tertiaires(3)(31)(32) allongées parallèles entre elles étant dans la direction principale de déplacement du dispositif nautique et étant sensiblement perpendiculaires à la direction principale de la structure frontale(1), les structures secondaires(2) et tertiaires (3)(31)(32) n' étant pas solidarisées par une structure arrière,.

Selon le mode de réalisation particulier : la structure frontale(1) est équipée en autre sur sa partie basse, notamment sous la ligne de flottaison, des moyens de tractage (fig1)(6).pour faciliter le décollage avant du dispositif nautique en traction,

Selon le mode de réalisation particulier -les moyens permettant le tractage comporte, au moins deux points d' attaches fixées sur la structure frontale(1), en alignement avec les structures secondaires(2) par rapport à la direction de déplacement.

Selon le mode de réalisation particulier - les moyens permettant le tractage(6) comporte, au moins deux éléments de tractage relié en un point central à l'extérieur de la partie avant du dispositif nautique lui même relié à l' élément de tractage relié au bateau tracteur,

Selon le mode de réalisation particulier - la structure frontale(1) présente une forme sensiblement en arc de cercle ou d' aile delta avec les extrémités fermées, la structure frontale(1)débouchant sensiblement vers l' arrière et/ou sur le côté,

Selon le mode de réalisation particulier - la structure frontale(1) présente une forme sensiblement en arc de cercle ou d' aile delta comportant au moins deux segments droits reliés entre eux avec les extrémités fermées de la structure frontale(1) débouchant sensiblement vers l' arrière et/ou sur le côté.

Selon le mode de réalisation particulier le dispositif nautique -comprend en outre de chaque côté une jupe latérale(7) souple, notamment de forme triangulaire, pour relier sur les côtés la structure frontale(1) aux structures tertiaires(31)(32) ou secondaires(2) les plus extérieures latéralement.

Selon le mode de réalisation particulier - les différentes structures gonflables se terminent, pour les extrémités non solidarisés par une forme sensiblement conique ou demi sphérique ou de forme ovoïde,

- le dispositif nautique comprend en outre des moyens de maintien de(s) passager(s) notamment de type sangle et/ou cale pieds,

Selon le mode de réalisation particulier -le dispositif nautique comprend des moyens de maintien(s) de(s) passagers pour tenir debout, allongés, assis ou à cheval sur la ou les structures secondaires.

Selon le mode de réalisation particulier - le dispositif nautique caractérisé en ce qu il comprend au moins deux structures secondaires(fig2)(2) reliées par au moins une structure tertiaire(fig2)(3), notamment plane, avec des moyens de commande directionnelle du dispositif nautique, notamment de type corde(12), fixés sur chacun des côtés(13) de la structure frontale(1), pour diriger le dispositif nautique par au moins un passager notamment en station debout.

Selon le mode de réalisation particulier - le dispositif nautique selon l'invention caractérisé en ce qu' il comprend trois structures secondaires(2), la structure secondaire centrale étant plus longue, chaque structure secondaire étant reliée de part et d' autre par une structure tertiaire gonflable, les deux structures tertiaires de part et d' autre de la structure secondaire centrale étant reliées entre elles, la partie arrière de par les longueurs des structures formant des profils triangulaires s' étendant vers l' arrière, les moyens de maintien des passagers étant situés principalement sur les structures secondaires.

Selon le mode de réalisation particulier - le dispositif nautique non motorisé tractable se soulevant de l' avant en traction et quittant par instant l' élément liquide, pour la pratique d' un sport, de loisir, aquatique à sensations caractérisé en ce qu'il comprend essentiellement :

- une structure gonflable(1) allongée uniquement frontale de direction principale perpendiculaire à la direction de déplacement,
- une structure secondaire(2) allongée gonflable solidarisée du côté intérieur de la structure frontale par une des extrémités de la structure secondaire(2) à la structure frontale sans être solidarisées aux extrémités fermées de la structure frontale qui débouche sur les côtés,

- deux structures tertiaires(3)(31) allongées gonflables de section transversale inférieur à la structure secondaire(2) et reliées de chaque coté à la structure secondaire(2) de façon parallèle afin de donner une flottabilité maximale ,
- des moyens de maintien de(s) passager(s) notamment de type sangle et/ou cale pieds,
- la structure secondaire et les structures tertiaires allongées parallèles entre elles étant dans la direction principale de déplacement du dispositif nautique et étant sensiblement perpendiculaires à la direction principale de la structure frontale(1),la structure secondaire(2) et les structures tertiaires(3)(31) n' étant pas solidarisées par une structure arrière,
la structure frontale(1) présentant une forme sensiblement en arc de cercle ou d' aile delta avec les extrémités fermées, la structure frontale(1) débouchant sensiblement vers l' arrière et/ou sur le côté.

des moyens de tractage(6) notamment sous la ligne de flottaisons fixés sur la structure frontale(6) de chaque côté du dispositif nautique une jupe latérale(7) souple, notamment de forme triangulaire, relie sur les côtés la structure frontale(1) aux structures tertiaires(3)(31).

Selon le mode de réalisation particulier - l' ensemble du dispositif est constitué par des structures rigides creuses ou pleines faites par exemple en l' un des matériaux suivant : matière plastique, résine armée de fibre de verre, matériaux composites, et autres.

Selon le mode de réalisation particulier - l' ensemble du dispositif est constitué par des structures gonflables faites dans des matières souples et étanches par exemple : caoutchouc, PVC, Hypalon néoprène et autres .

Selon le mode de réalisation particulier - au moins une structure tertiaire (3)(31)(32) est constitué en matières souple et étanches par exemple : caoutchouc, PVC, Hypalon néoprène. Des techniques particulières ont été élaborées afin de permettre
- d' une part : l' incorporation des structures perpendiculaires(2) dans la structure frontale(1),
- d' autre part : la réalisation de la structure frontale(1).

Selon le mode de réalisation particulier - chaque structure perpendiculaire(2) peut accueillir un ou plusieurs passagers assis ou debout l' un derrière l' autre et/ou côte à côte.

Selon le mode de réalisation particulier - chaque côté des structures perpendiculaires(2) une ou plusieurs petites structures intermédiaires(3)(31)(32) servent à la fois de reposes pieds et de stabilisateur tout en assurant une meilleur flottabilité du dispositif nautique

Selon le mode de réalisation particulier - les différentes structures gonflables se terminent en forme de cônes ou en toutes autres formes permettant leurs terminaison
Selon le mode de réalisation particuliers - des sangles ou tout autre système, peuvent être fixées à tous endroits utiles du dispositif nautique afin d'améliorés le maintient des pieds du ou des passagers.

Selon le mode de réalisation particulier - les différentes structures sont solidarisées ensemble, soit par collage et/ou soudure et/ou couture, les structures gonflables peuvent avoir de(s) enveloppe(s) indépendante(s) pour augmenter la sécurité , pour l' aspect insubmersible, les structures gonflables secondaires peuvent être solidarisées à la structure frontale en s' insérant partiellement par une extrémité dans la structure frontale avec des fixations par et/ou soudure et/ou couture.

La figure 1 représente le dispositif nautique en perspective
La figure 2 représente une variante le dispositif nautique vue du dessus
La figure 3 représente une variante du dispositif nautique en perspective.

Revendications

1) Dispositif nautique non motorisé tractable se soulevant de l' avant en traction et quittant par instant l' élément liquide pour la pratique d' un sport de loisir, aquatique à sensations caractérisé en ce qu'il comprend essentiellement :
une structure de façon préférentielle gonflable(fig1)(1), allongée uniquement frontale de direction principale perpendiculaire à la direction de déplacement
- au moins deux structures secondaires(2) allongées gonflables solidarisée du côté intérieur de la structure frontale par une des extrémités des structures secondaires(2) à la structure frontale(1) sans être solidarisées aux extrémités fermées de la structure frontale qui débouche sur les côtés,
- au moins une structure(s) tertiaire(s)(3)(3_1)(3_2) allongée(s) gonflable(s) ou non de section transversale inférieur à celles des structures secondaires(2) reliant les structures secondaires(2) de façon parallèle afin de donner une flottabilité maximale, le(s) structure(s) tertiaire(s) pouvant être optionnellement juxtaposée(s) ensemble par groupe(s), pour relier les structures secondaires,
- des moyens de maintien de(s) passager(s) (5)
les structures secondaires(2) et tertiaires(3)(3_1)(3_2) allongées parallèles entre elles étant dans la direction principale de déplacement du dispositif nautique et étant sensiblement perpendiculaires à la direction principale de la structure frontale(1), les structures secondaires(2) et tertiaires (3)(3_1)(3_2) n' étant pas solidarisées par une structure arrière.

2) Dispositif nautique selon la revendication 1 caractérisé en ce que la structure frontale(1) est équipée sur sa partie basse, notamment sous la ligne de flottaison, des moyens de tractage (fig1)(6).pour faciliter le décollage avant du dispositif nautique en traction.

3) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce que les moyens permettant le tractage comporte, au moins deux points d' attaches fixées sur la structure frontale(1), en alignement avec les structures secondaires(2) par rapport à la direction de déplacement.

4) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce que la structure frontale(1) présente une forme sensiblement en arc

de cercle ou d' aile delta avec les extrémités fermées, la structure frontale(1) débouchant sensiblement vers l' arrière et/ou sur le côté.

5)°Dispositif nautique selon i' une quelconque des revendications 1 à 4 caractérisé en ce que la structure frontale(1) présente une forme en arc de cercle ou d' aile delta comportant au moins deux segments droits reliés entre eux avec les extrémités fermées de la structure frontale(1) débouchant sensiblement vers l' arrière et/ou sur le côté.

6) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce qu' il comprend en outre de chaque côté une jupe latérale(7) souple, notamment de forme triangulaire, pour relier sur les côtés la structure frontale(1) aux structures tertiaires(3_1)(3_2) ou secondaires(2) les plus extérieures latéralement.

7) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce que les différentes structures gonflables se terminent, pour les extrémités non solidarisés par une forme sensiblement conique ou demi sphérique ou de forme ovoïde.

8) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce qu' il comprend en outre des moyens de maintien de(s) passager(s) notamment de type sangle et/ou cale pieds (fig2)(11).

9) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce qu' il comprend des moyens de maintiens des passagers pour tenir debout, allongés, assis ou à cheval sur la ou les structures secondaires. (fig1)(5)

10) Dispositif nautique selon l'une quelconque des revendications précédentes caractérisé en ce qu'il comprend au moins deux structures secondaires(fig2)(2) reliées par au moins une structure tertiaire(fig2)(3), notamment plane, avec des moyens de commande directionnelle du dispositif nautique, notamment de type corde(fig2)(12), fixés sur chacun des côtés(fig2)(13) de la structure frontale(1), pour diriger le dispositif nautique par au moins un passager notamment en station debout.

11) Dispositif nautique selon l'une quelconque des revendications 1 à 10 caractérisé en ce qu' il comprend trois structures secondaires(fig1)(2), la structure secondaire centrale étant plus longue, chaque structure secondaire étant reliée de part et d' autre par une structure tertiaire gonflable, les deux structures tertiaires de part et d' autre de la structure secondaire centrale étant reliées entre elles, la partie arrière de par les longueurs des structures formant des profils triangulaires s' étendant vers l' arrière, les moyens de maintien des passagers étant situés principalement sur les structures secondaires.(5)

12) Dispositif nautique non motorisé tractable se soulevant de l' avant en traction et quittant par instant l' élément liquide, pour la pratique d' un sport, de loisir, aquatique à sensations caractérisé en ce qu'il comprend essentiellement :

- une structure gonflable (fig3)(1) allongée uniquement frontale de direction principale perpendiculaire à la direction de déplacement, - une structure secondaire(2) allongée gonflable solidarisée du côté intérieur de la structure frontale par une des extrémités de la structure secondaire(fig3)(2) à la structure frontale sans être solidarisées aux extrémités fermées de la structure frontale qui débouche sur les côtés,
- deux structures tertiaires(fig3)(3)(3_1) allongées gonflables de section transversale inférieur à la structure secondaire(2) et reliées de chaque coté à la structure secondaire(2) de façon parallèle afin de donner une flottabilité maximale.
– des moyens de maintien de(s) passager(s) de type sangle et/ou cale pieds,

la structure secondaire et les structures tertiaires allongées parallèles entre elles étant dans la direction principale de déplacement du dispositif nautique et étant sensiblement perpendiculaires à la direction principale de la structure frontale(1), la structure secondaire(2) et les structures tertiaires(3)(3_1) n' étant pas solidarisées par une structure arrière

- la structure frontale(1) présentant une forme sensiblement en arc de cercle ou d' aile delta avec les extrémités fermées, la structure frontale(1) débouchant sensiblement vers l' arrière et/ou sur le côté,
- des moyens de tractage(6) notamment sous la ligne de flottaisons fixés sur la structure frontale(1),
- de chaque côté du dispositif nautique une jupe latérale(7) souple, notamment de forme triangulaire, relie sur les côtés la structure frontale(1) aux structures tertiaires(3)(3_1).

13) Dispositif nautique selon l'une quelconque des revendications 1 à 12 modifié en ce que l' ensemble du dispositif est constitué par des structures rigide creuse ou pleine faite par exemple en l' un des matériaux suivant :matière plastique, résine armée de fibre de verre, matériaux composites.

14) Dispositif nautique selon l'une quelconque des revendications 1 à 12 caractérisé en ce que l' ensemble du dispositif est constitué par des structures gonflables faites dans des matières souples et étanches par exemple : caoutchouc, PVC, Hypalon néoprène .

15) Dispositif nautique selon l'une quelconque des revendications 1 à 12 caractérisé en ce qu' au moins une structure tertiaire (3)(3_1)(3_2) est constitué en matières souple et étanches par exemple : caoutchouc, PVC, Hypalon néoprène .

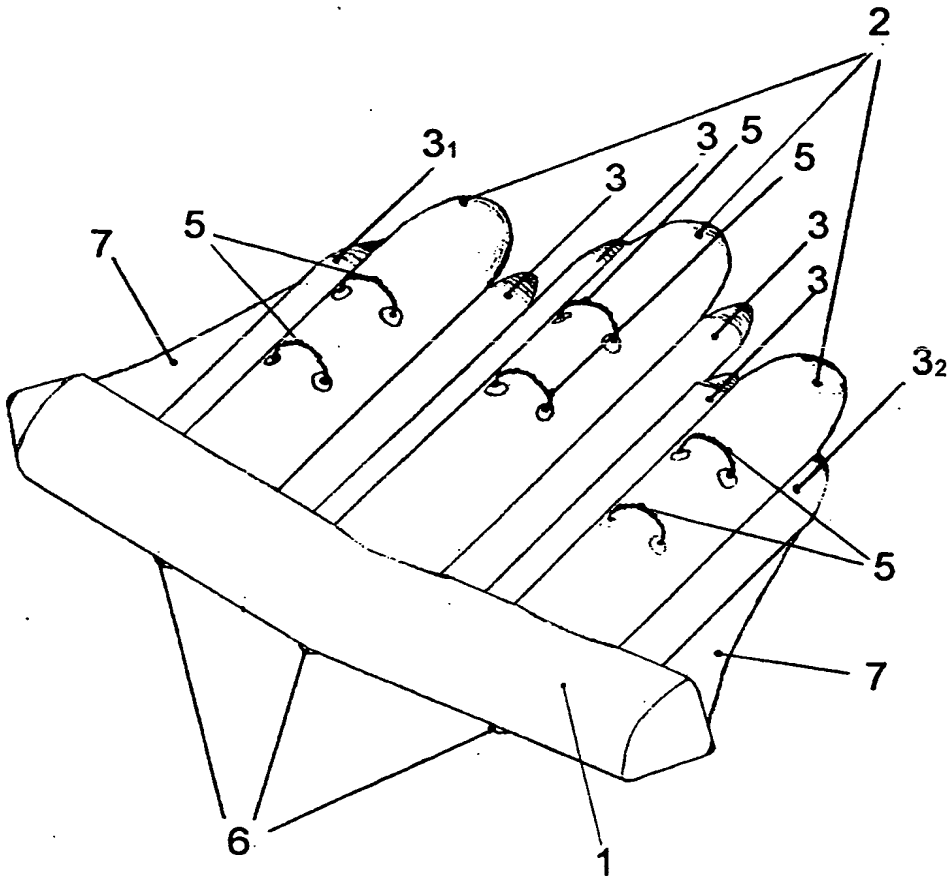

Fig 1

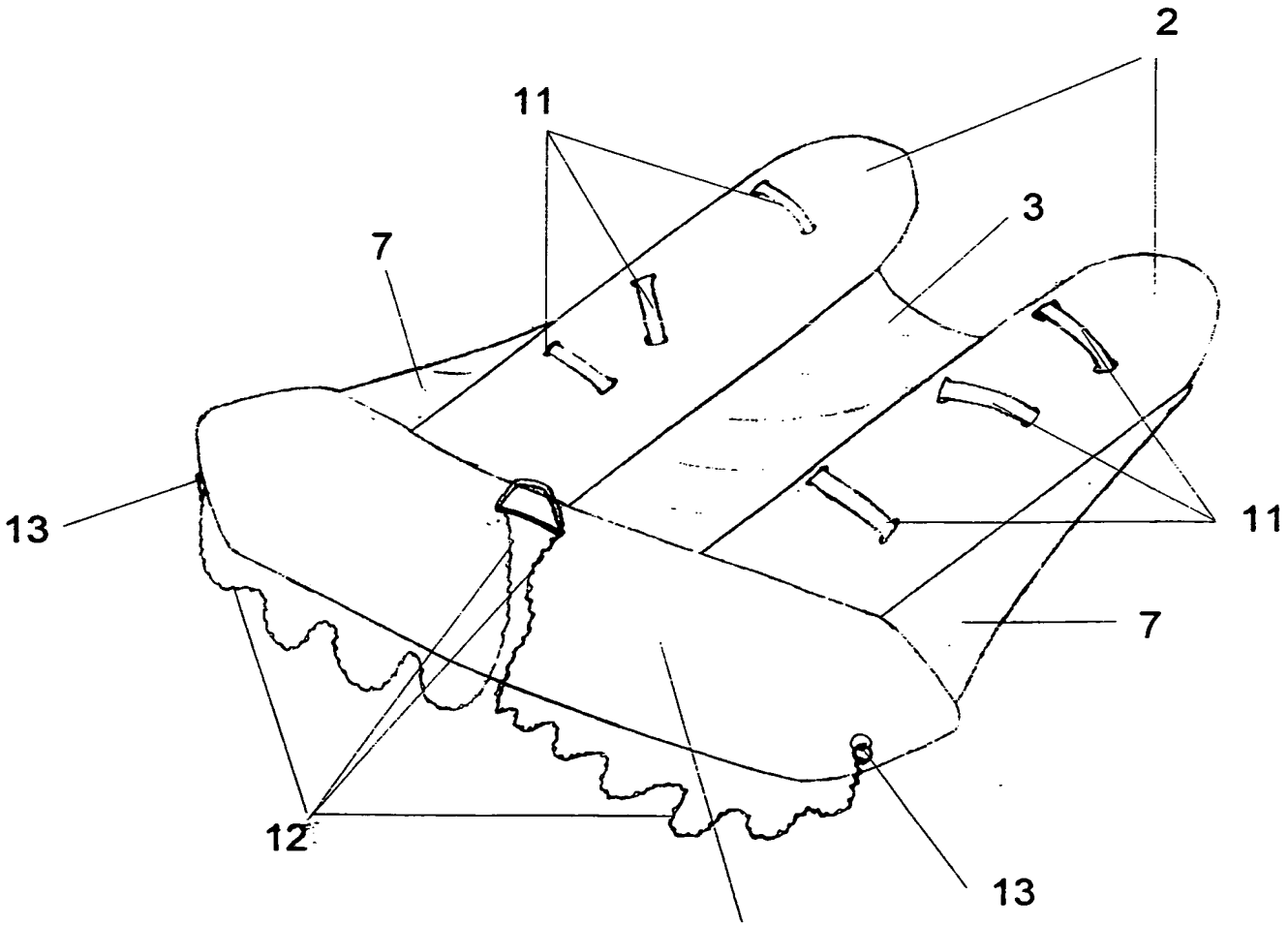

Fig 2

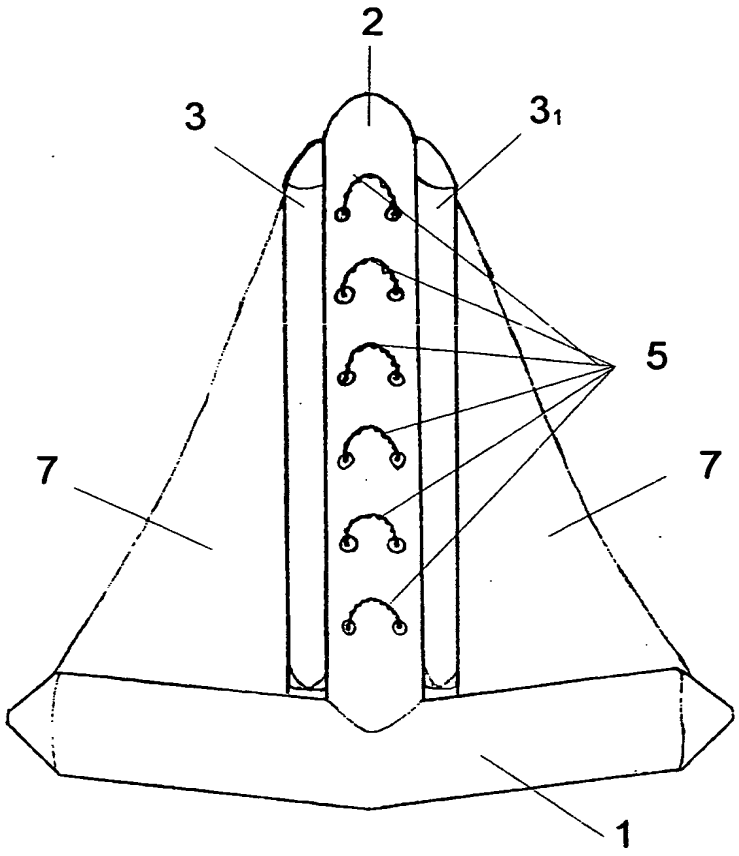

Fig 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/FR 00/00478

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B63B7/08 B63B1/14 B63B35/74

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	DE 88 11 319 U (LEROY) 27 October 1988 (1988-10-27) the whole document	1,7 2-5,8,9, 11-15
Y A	NL 7 903 845 A (BONT) 18 November 1980 (1980-11-18) page 2, line 25 - line 30; figure 1	2 3,12
Y A	US 2 986 751 A (BAREN) 6 June 1961 (1961-06-06) the whole document	3-5,11 10,12
Y A	FR 1 039 886 A (HELBERT) 12 October 1953 (1953-10-12) page 2, left-hand column, paragraph 5; figures 1-4	8 1,7,12

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
22 June 2000	03/07/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	DE SENA HERNAND.., A

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
Y	FR 1 477 564 A (POILPRE) 5 July 1967 (1967-07-05) page 1, left-hand column, paragraph 1	9
Y	FR 2 422 550 A (PETRAU) 9 November 1979 (1979-11-09)	12-15
A	the whole document	1,5,6
A	US 3 605 148 A (TAILER) 20 September 1971 (1971-09-20) column 2, line 36 - line 68; figures 1-4	1
A	US 5 006 087 A (PETERSON) 9 April 1991 (1991-04-09) column 2, line 42 - line 48; figures 1-7	1,12
A	GB 170 356 A (DOBBS) page 1, line 64 - line 66; figure 2	1,4,5
A	FR 1 279 985 A (DUDOUYT) 4 May 1962 (1962-05-04) figures 1-11	1
A	US 3 785 317 A (CURREY) 15 January 1974 (1974-01-15) figures 1-3	1,7
A	WO 86 07025 A (PALMER) 4 December 1986 (1986-12-04) the whole document	1,7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/FR 00/00478

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 8811319 U	27-10-1988	NONE	
NL 7903845 A	18-11-1980	NONE	
US 2986751 A	06-06-1961	NONE	
FR 1039886 A	12-10-1953	NONE	
FR 1477564 A	05-07-1967	NONE	
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US 3605148 A	20-09-1971	NONE	
US 5006087 A	09-04-1991	NONE	
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		EP 0224570 A	10-06-1987
		GB 2186528 A,B	19-08-1987
		IN 167536 A	10-11-1990
		US 4762078 A	09-08-1988

RAPPORT DE RECHERCHE INTERNATIONALE

Demande internationale No
PCT/FR 00/00478

A. CLASSEMENT DE L'OBJET DE LA DEMANDE
CIB 7 B63B7/08 B63B1/14 B63B35/74

Selon la classification internationale des brevets (CIB) ou à la fois selon la classification nationale et la CIB

B. DOMAINES SUR LESQUELS LA RECHERCHE A PORTE

Documentation minimale consultée (système de classification suivi des symboles de classement)
CIB 7 B63B

Documentation consultée autre que la documentation minimale dans la mesure où ces documents relèvent des domaines sur lesquels a porté la recherche

Base de données électronique consultée au cours de la recherche internationale (nom de la base de données, et si réalisable, termes de recherche utilisés)

C. DOCUMENTS CONSIDERES COMME PERTINENTS

Catégorie °	Identification des documents cités, avec, le cas échéant, l'indication des passages pertinents	no. des revendications visées
X Y	DE 88 11 319 U (LEROY) 27 octobre 1988 (1988-10-27) le document en entier	1,7 2-5,8,9, 11-15
Y A	NL 7 903 845 A (BONT) 18 novembre 1980 (1980-11-18) page 2, ligne 25 - ligne 30; figure 1	2 3,12
Y A	US 2 986 751 A (BAREN) 6 juin 1961 (1961-06-06) le document en entier	3-5,11 10,12
Y A	FR 1 039 886 A (HELBERT) 12 octobre 1953 (1953-10-12) page 2, colonne de gauche, alinéa 5; figures 1-4	8 1,7,12

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[X] Voir la suite du cadre C pour la fin de la liste des documents

[X] Les documents de familles de brevets sont indiqués en annexe

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Date à laquelle la recherche internationale a été effectivement achevée	Date d'expédition du présent rapport de recherche internationale
22 juin 2000	03/07/2000

Nom et adresse postale de l'administration chargée de la recherche internationale	Fonctionnaire autorisé
Office Européen des Brevets, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	DE SENA HERNAND.., A

Formulaire PCT/ISA/210 (deuxième feuille) (juillet 1992)

RAPPORT DE RECHERCHE INTERNATIONALE

De ...ide Internationale No
PCT/FR 00/00478

C.(suite) DOCUMENTS CONSIDERES COMME PERTINENTS

Catégorie °	Identification des documents cités, avec, le cas échéant, l'indicationdes passages pertinents	no. des revendications visées
Y	FR 1 477 564 A (POILPRE) 5 juillet 1967 (1967-07-05) page 1, colonne de gauche, alinéa 1	9
Y	FR 2 422 550 A (PETRAU) 9 novembre 1979 (1979-11-09)	12-15
A	le document en entier	1,5,6
A	US 3 605 148 A (TAILER) 20 septembre 1971 (1971-09-20) colonne 2, ligne 36 - ligne 68; figures 1-4	1
A	US 5 006 087 A (PETERSON) 9 avril 1991 (1991-04-09) colonne 2, ligne 42 - ligne 48; figures 1-7	1,12
A	GB 170 356 A (DOBBS) page 1, ligne 64 - ligne 66; figure 2	1,4,5
A	FR 1 279 985 A (DUDOUYT) 4 mai 1962 (1962-05-04) figures 1-11	1
A	US 3 785 317 A (CURREY) 15 janvier 1974 (1974-01-15) figures 1-3	1,7
A	WO 86 07025 A (PALMER) 4 décembre 1986 (1986-12-04) le document en entier	1,7

RAPPORT DE RECHERCHE INTERNATIONALE

Renseignements relatifs aux membres de familles de brevets

D. nde internationale No
PCT/FR 00/00478

Document brevet cité au rapport de recherche		Date de publication	Membre(s) de la famille de brevet(s)		Date de publication
DE 8811319	U	27-10-1988	AUCUN		
NL 7903845	A	18-11-1980	AUCUN		
US 2986751	A	06-06-1961	AUCUN		
FR 1039886	A	12-10-1953	AUCUN		
FR 1477564	A	05-07-1967	AUCUN		
FR 2422550	A	09-11-1979	AUCUN		
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			EP	0224570 A	10-06-1987
			GB	2186528 A,B	19-08-1987
			IN	167536 A	10-11-1990
			US	4762078 A	09-08-1988

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09/914215

National phase

As Amended

09/914215
JC05 Rec'd PCT/PTO 2 3 AUG 2001

Description modifications

Page 1	Lines	17 to 24	new
Page 1	Line	17	(Fig1)
Page 1	Line	30	(Fig1)
Page 2	Line	1	(Fig1)
Page 3	Line	7	(Fig2)(11)
Page 3	Line	10	(Fig2)(5)
Page 3	Line	13	(Fig2)
Page 3	Line	16	(Fig2) (Fig2)
Page 3	Line	20	(Fig1)
Page 3	Line	26	(Fig1)(5)
Page 3	Line	31	(Fig3)
Page 3	Line	34	(Fig3)
Page 3	Line	35	(Fig3)
Page 4	Line	1	(Fig3)(1)
Page 4	Line	2	(Fig3)(1)
Page 4	Line	4	(Fig3)
Page 4	Line	5	(Fig3)
Page 4	Line	6	(Fig3)
Page 4	Line	9	(Fig3)(2) (Fig3)(3_1)(3_2)
Page 4	Line	12	(Fig3)
Page 4	Line	13	(Fig3)
Page 4	Line	14	(Fig3)
Page 4	Line	15	(Fig3)
Page 4	Line	18	(Fig1)
Page 4	Line	19	(Fig1)
Page 4	Line	20	(Fig3)
Page 4	Line	21	(Fig3) (Fig3)
Page 5	Line	1	'Perpendicular' replaced by 'secondary'.
Page 5	Line	6	'Perpendicular' replaced by 'secondary'.
Page 5	Line	6	'Intermediate' replaced by 'auxiliary'.
Page 5	Line	21	(2)
Page 5	Line	22	(1)
Page 5	Line	23	(1)
Page 5	Line	26	'From above' replaced by 'perspective'.
Page 5	Line	27	'In perspective' replaced by 'seen from above'.

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JC05 Rec'd PCT/PTO 2 3 AUG 2001

Claim modifications

The new independent Claim 1 is the former Claim 1 redrafted to allow the appearance of the notable characteristic where the secondary structures are perpendicular to the principal front structure.

A new Claim 2 on page 6 has been added (description on page 5, lines 17-23)

A new Claim 3 on page 6 has been added (description on page 5, lines 17-23)

Claim 4 *delta has been removed*
Claim 5 *delta has been removed*
The new Claim 6 is the former Claim 2.
The new Claim 7 is the former Claim 3.
Removal of: in alignment with the secondary structures (2) relative to the direction of movement.
The new Claim 8 is the former Claim 6.
The new Claim 9 is the former Claim 7.
Added: or in any other shape they may be terminated in.
(Description on page 5, lines 10 to 12)
The new Claim 10 is the former Claim 8.
The new Claim 11 is the former Claim 9.
The new Claim 12 is the former Claim 10.
The new Claim 13 is the former Claim 11.
Removal of: the central secondary structure being longer that the rear part by lengths of structures forming triangular profiles extending towards the rear.
The new independent Claim 14 is the former Claim 12 *redrafted to to allow the appearance of a notable characteristic wherein the secondary structures are perpendicular to the principal front structure.*
Added to page 9, lines 4 and 5 (description on page 2, lines 1 to 5)
A new Claim 15 on page 9 has been added (description on page 5, lines 18-23).
A new Claim 16 on page 9 has been added (description on page 5, lines 18-23).
The new Claim 17 is the former Claim 15.
The new Claim 18 is the former Claim 14.

Page 6	Line 24	(1)		Page 9 Line 1	(fig 3)
Page 6	Line 25	(1)		Page 9 Line 2	(fig 3)
Page 8	Line 4	(fig 2)		Page 9 Line 3	(fig 3)
Page 8	Line 7	10 replaced by 12.			
Page 8	Line 9	(fig 1)(2)			
Page 8	Line 12	(fig 1)			
Page 8	Line 19	(fig 3)			
Page 8	Line 20	(fig 3)(1)			
Page 8	Line 21	(fig 3)(1)			
Page 8	Line 23	(fig 3)			
Page 8	Line 24	(fig 3)			
Page 8	Line 26	(5)			
Page 8	Line 27	(fig 3)(2)	(fig3)(3)(31)		
Page 8	Line 30	(fig 3)	(fig 3) (fig 3)		

3/PRTS 09/914215
JC05 Rec'd PCT/PTO 23 AUG 2001

TOWABLE NAUTICAL DEVICE FOR LEISURE ACTIVITIES

This invention concerns a non-motorised towable nautical device, preferably inflatable, which may, on occasion, leave the liquid element and procure specific sensations in the pursuit of a collective aquatic leisure activity.

Certain inflatable, non-motorised towable nautical devices, traditionally long in shape, offered solely the possibility for the passengers to sit placed one behind the other to follow the movements of the waves.

The nautical device, according to the invention, allows for passengers placed one behind the other and/or side by side to enjoy new sensations specific to the invention. In effect, the front of the nautical device, in accordance with its towing speed, rears up in a progressively vertical fashion against the liquid element, bouncing from wave to wave and leaving the liquid element on occasion.

It comprises, according to a first characteristic, an inflatable front structure, called a Front Structure (fig. 1)(1), of a more or less cylindrical form made from Hypalon neoprene or any other similar material, incorporating perpendicularly at least two inflatable structures of more or less cylindrical shape called Secondary Structures (fig1) (2). The secondary structures, with a constant transvere section, are interlocked in a perpendicular manner to the inner side (rear side) of the front structure to form a relatively rigid assemblage in order to strongly suppress and/or decrease the movement of the secondary structures in comparison with the front structure. However, the secondary and/or auxiliary structures may occasionally tend to bend with slight flexion under the strong stresses from the water and/or wind and/or towing, in particular, by rolling and/or pitching.

This invention concerns a non-motorised towable device lifting from the front when towed and leaving the liquid element on occasions for the pursuit of a sensational aquatic leisure activity characterised by its essential components, which are:

- A preferably inflatable structure (fig. 1)(1), elongated uniquely in a principal forwards direction perpendicular to the direction of movement,,

- At least two elongated inflatable secondary structures (fig 1) (2), which interlock on the internal side of the front structure with one of the extremities of the secondary structures (2) to the front structure (1), without interlocking to the closed extremities of the front structure, which emerge from the sides.,

- At least one elongated inflatable or non-inflatable auxiliary structure (3)(3_1)(3_2) with a transversal section inferior to those of the secondary structures (2), linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy,

the auxiliary structure(s) being able to be optionally juxtaposed together in groups to link the secondary structures,

- Method for the passenger or passengers to hold on by (5).

- The secondary (2) and auxiliary structures (3)(3_1)(3_2), lying parallel to each other in the nautical device's principal direction of movement, and being approximately perpendicular to the principal direction of the front structure (1), the secondary structures (2) and the auxiliary structures (3)(3_1)(3_2) not being linked by a rear structure,

According to the special construction method – the front structure (1) is equipped on its lower part, in particular, the floatation line, with a towing attachment (fig. 1)(6) to facilitate the lifting of the front of the nautical device when towed,

According to the special construction method – towing is made possible by means of at least two attachment points fixed to the front structure (1), in alignment with the secondary structures (2) relative to the direction of movement.

According to the special construction method – the towing attachments (6) comprise at least two towing elements linked to a central point on the external forward part of the nautical device, which is itself linked to a towing element linked to the towing boat,

According to the special construction method – the front structure (1) presents an appearance approximately semicircular or delta-wing shaped with the extremities closed, the front structure (1) emerging approximately towards the rear and/or the side,

According to the special construction method – the front structure (1) would appear to be approximately semicircular or delta wing shaped, comprising at least two straight segments linked together with the closed extremities of the front structure (1), emerging approximately towards the rear and/or to the side.

According to the special construction method – moreover, the nautical device comprises of a supple lateral skirt (7) along each side, markedly triangular in shape, to link the sides of the front structure (1) to the auxiliary structures (3_1)(3_2), or to the most external lateral secondary ones (2).

According to the special construction method – the various different inflatable structures terminate in unlinked extremities with an approximately conical, semi-spherical or ovoid form.

- Moreover, the nautical device comprises a method for the passenger or passengers to hold on with, in particular, straps and/or foot chocks (fig 2) (11)

According to the special construction method - the nautical device comprises a method for the passenger or passengers to stand upright, lie down, sit or sit astride the secondary structures (fig 2) (5)

According to the special construction method – the nautical device, characteristically composed of at least two secondary structures (fig. 2)(2), linked by at least one auxiliary structure (fig. 2)(3), distinctively flat, with a method of directional control for the nautical device, in particular and typically a cord, (fig. 2)(12) fixed to each side (fig. 2)(13) of the front structure (1) to steer the nautical device by at least one passenger, typically standing upright.

According to the special construction method - the nautical device, according to the invention, characteristically comprises three secondary structures (fig. 1)(2), the central secondary structure being linked at one end and the other by a auxiliary inflatable structure, the two secondary structures on either side of the central secondary structure being joined between each other, the rear part, by lengths of structures forming triangular profiles extending towards the rear, the method for passengers to hold on being situated principally on the secondary structures (5)

According to the special construction method – the front of the towable non-motorised nautical device lifts up when towed and leaves the liquid element occasionally in the pursuit of a sensational aquatic sport, a leisure activity, characterised essentially by:

- An inflatable structure (fig 3)(1) elongated uniquely in a principal forward direction, perpendicular to the direction of movement.,
- An elongated inflatable secondary structure (fig 3)(2) which interlocks on the inner side of the front structure with one of the extremities of the secondary structures (fig 3)(2) to the front structure (fig 3)(1), without interlocking to the closed extremities of the frontal structure (fig 3)(1), which emerge from the sides.,

- Two elongated inflatable auxiliary structures (fig 3)(3)(3₁), with a transverse section inferior to those of the secondary structures (fig 3)(2), linking the secondary structures (fig 3)(2) in a parallel manner in order to provide maximum buoyancy.

- A method for the passenger or passengers to hold on with, in particular, straps and/or foot chocks.

- The secondary (fig 3)(2) and auxiliary structures (fig 3)(3)(3₁), lying parallel to each other in the nautical device's principal direction of movement and being approximately perpendicular to the principal direction of the front structure (fig 3)(1), the secondary structure (fig 3)(2) and the auxiliary structures (fig 3)(3)(3₁) not being linked by a rear structure.

the front structure (fig 3)(1) appears approximately semicircular or delta-wing shaped, with the extremities closed, the front structure (fig 3)(1) emerging approximately towards the rear and/or the side.

Towing attachments (fig 1)(6), in particular, under the floatation line, a supple lateral skirt (fig 3)(7) is fixed to the front structure (fig 1)(6) on either side of the nautical device, markedly triangular in shape, linking the sides of the front structure (fig 3)(1) to the auxiliary structures (fig 3)(3)(3₁).

According to the special construction method – the entire device is composed of hollow or solid rigid structures made, for example, from one of the following materials: plastic, reinforced fibreglass resin, composite material and others.

According to the special construction method – the entire device is composed of inflatable structures made from supple or watertight materials, for example, from one of the following materials: rubber, PVC, Hypalon neoprene and others.

According to the special construction method - at least one of the auxiliary structures (3)(3₁)(3₂) is made from supple or watertight materials, for example: rubber, PVC, Hypalon neoprene. Special techniques have been elaborated in order to allow firstly:

- incorporation of perpendicular structures (2) in the front structure (1),
- secondly, the construction of the front structure (1).

According to the special construction method – each perpendicular structure (2) can accommodate one or several passengers sitting or standing one behind the other or side by side.

According to the special construction method – to each side of the secondary structures (2), one or more small auxiliary structures (3)(3_1)(3_2) may be used either as foot rests or stabilisers while ensuring at the same time better buoyancy for the nautical device.

According to the special construction method – the different inflatable structures' extremities are cone-shaped or of any other shape they may be terminated in.

According to the special construction method – straps or any other system can be fixed in any useful place on the nautical device in order to improve the passenger or passengers foothold.

According to the special construction method – the different structures are interlocked together either by adhesives and/or welding and/or by sewing. The inflatable structures can incorporate (an) independent compartment(s) to increase safety; regarding the question of submergibility, inflatable secondary structures (2) can be interlocked with the front structure (1) by inserting one extremity into the front structure with fasteners or by adhesives and/or welding and/or by sewing.

Figure 1 represents the nautical device in perspective
Figure 2 represents a variation of the nautical device seen in perspective.
Figure 3 represents a variation of the nautical device seen from above

Claims

1) Towable non-motorised nautical device whose front part lifts when towed and leaves the liquid element occasionally for the pursuit of a sensational aquatic leisure activity, characterised by its essential components, which are:

- An inflatable structure (fig .1)(1), of elongated cylindrical form, uniquely forward facing, the principal direction perpendicular to the direction of movement.
- At least two inflatable parallel elongated secondary structures (2), interlocked to the internal side of the front structure by one extremity without being interlocked to the closed extremities of the frontal structure, which emerge from the sides.
- At least one elongated inflatable or non-inflatable auxiliary structure (3)(3_1)(3_2), with a transverse section inferior to those of the secondary structures (2), linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy, the auxiliary structure(s) being able to be optionally juxtaposed together in groups to link the secondary structures.
- A method for the passenger or passengers to hold on by (5).
- The secondary (2) and auxiliary structures (3)(3_1)(3_2), lying parallel to each other in the nautical device's principal direction of movement, and being approximately perpendicular to the principal direction of the front structure (1), the secondary structures (2) and the auxiliary structures (3)(3_1)(3_2) not being linked by a rear structure.

2) Nautical device which, according to Claim 1, is characterised by secondary structures of cylindrical shape, interlinked in a perpendicular fashion to the principal direction of the front structure (1) by inserting one of their extremities in the internal side of the frontal structure (1) with a fastener, in particular, by adhesive and/or by sewing.

3) Nautical device which, according to Claims 1 or 2 is characterised by inflatable structures with (an) independent compartment(s) to increase safety regarding the question of submergibility.

4) Nautical device which, according to whatever previous claim is characterised by the structure of the principal forward direction (1), appears approximately semicircular or delta-wing shaped, with closed extremities, the front structure (1) emerging approximately towards the rear and/or to the side.

Claims

5) Nautical device which, according to any one of Claims 1 to 4 is characterised by a front structure (1) and would appear to be approximately semicircular or wing-shaped, comprising at least two straight segments linked together with the closed extremities of the front structure (1), emerging approximately towards the rear and/or to the side.

6) Nautical device which, according to whatever of the claims, in characterised by a front structure (1), equipped on its lower part, in particular, the floatation line, with a towing attachment (fig. 1)(6), to facilitate frontal lifting of the nautical device when towed.

7) Nautical device according to Claim 6 is characterised by towing attachments comprising at least two attachment points fixed to the front structure (1),

8) Nautical device which, according to whatsoever of the previous claims, is characterised in that it comprises a supple lateral skirt (7) along each side, markedly triangular in shape, to link the sides of the front structure (1) to the auxiliary structure (3_1)(3_2) or to the most external lateral secondary ones (2).

9) Nautical device which, according to one of the previous claims, is characterised in that the various different inflatable structures terminate in unlinked extremities with an approximately conical, semi-spherical or ovoid form or in any other shape which can terminate their extremities.

10) Nautical device which, according to any of the previous claims, is characterised by, and moreover comprises, a method whereby the passenger or passengers can hold on, in particular, straps and/or foot chocks (fig. 2)(11).

11) Nautical device which,according to any of the previous claims, is characterised by, and comprises a method whereby the passenger or passengers can stand upright, lie down, sit or sit astride the secondary structures (fig. 1)(5).

12) Nautical device which, according to any one of the previous claims, is characterised in that it is comprised of at least two secondary structures (fig. 2)(2) linked by at least one auxiliary structure (fig. 2)(3), distinctively flat, with a method of directional control for the nautical device, in particular and typically, a cord (fig. 2)(12), fixed to each side (fig.

Claims

2)(13) of the front structure (fig. 2)(1), to steer the nautical device by at least one passenger, typically standing upright.

13) Nautical device which, according to any one of the previous Claims 1 to 12, in that it comprises three secondary structures (fig. 1)(2), the central secondary structure (fig. 1)(2) being linked at one end and the other by a auxiliary inflatable or non-inflatable structure to the two auxiliary structures (fig. 1)(3), on either side of the central secondary structure being joined between each other, the method for passengers to hold on by being situated principally on the secondary structures (fig. 1)((5).

14) The front of the towable non-motorised nautical device lifts up when towed and leaves the liquid element occasionally in the pursuit of a sensational aquatic sport, a leisure activity, characterised essentially by:

- An inflatable structure (fig. 3)(1) elongated uniquely in a principal front-ward direction perpendicular to the direction of movement.
- An elongated inflatable secondary structure (fig. 3)(2) which interlocks on the internal side of the front structure (fig. 3)(1) with one of the extremities of the secondary structure without interlocking to the closed extremities of the frontal structure (fig. 3)(1), which emerge from the sides.
- Two elongated auxiliary structures (fig. 3)(3)(3_1), lying parallel to each other, inflatable or non-inflatable, with a transverse section inferior to those of the secondary structures (fig. 3)(2), linked to each side of the secondary structures (fig. 3)(2) in a parallel fashion in order to provide maximum buoyancy.
- Methods for the passenger or passengers to hold on by (5).
- The secondary (fig. 3)(2) and auxiliary structures (fig. 3)(3)(3_1), lying parallel to each other in the nautical device's principal direction of movement and being perpendicular to the principal direction of the front structure (fig. 3)(1), the secondary structure (fig. 3)(2) and the auxiliary structures ((fig. 3)(3)(3_1), not being linked by a rear structure.
- Towing attachments (fig. 1)(6), in particular, under the floatation line fixed to the front structure (fig. 1)(1).
- A supple lateral skirt (fig. 3)(7) on either side of the nautical device, markedly triangular in shape, linking the sides of the front structure (fig. 3)(1) to the auxiliary structures (fig. 3)(3)(3_1).
- The secondary structure (fig. 3)(2) and the auxiliary structures (fig. 3)(3)(3_1), being perpendicular to the principal direction of the front structure (fig. 3)(1).

Claims

15) Nautical device which, according to Claim 14 is characterised by the secondary structure (fig. 3)(2) of cylindrical form, is interlocked in a perpendicular manner to the principal direction of the front structure (fig. 3)(1) incorporating via one of their extremities in the internal side of the front structure (fig. 3)(1) with a fastener, in particular, by adhesive and/or by sewing.

16) Nautical device which, according to Claims 1 to 15, is characterised by inflatable structures with (an) independent partition(s) to increase safety as regards submergibility.

17) Nautical device which, according to Claims 1 to 15, is characterised by at least one auxiliary structure (3)(3_1)(3_2) consisting of supple and watertight materials, for example: rubber, PVC or Hypalon neoprene.

18) Nautical device which, according to any one of Claims 1 to 15, is characterised in that the entire device consists of inflatable structures made from supple and watertight materials, for example: rubber, PVC, Hypalon neoprene.

TOWABLE NAUTICAL DEVICE FOR LEISURE ACTIVITIES

This invention concerns a non-motorised towable nautical device, preferably inflatable, which may, on occasion, leave the liquid element and procure specific sensations in the pursuit of a collective aquatic leisure activity.

Certain inflatable, non-motorised towable nautical devices, traditionally long in shape, offered solely the possibility for the passengers to sit placed one behind the other to follow the movements of the waves.

The nautical device, according to the invention, allows for passengers placed one behind the other and/or side by side to enjoy new sensations specific to the invention. In effect, the front of the nautical device, in accordance with its towing speed, rears up in a progressively vertical fashion against the liquid element, bouncing from wave to wave and leaving the liquid element on occasion.

It comprises, according to a first characteristic, an inflatable front structure, called a Front Structure (fig. 1)(1), of a more or less cylindrical form made from Hypalon neoprene or any other similar material, incorporating perpendicularly at least two inflatable structures of more or less cylindrical shape called Secondary Structures (2).

This invention concerns a non-motorised towable device lifting from the front when towed and leaving the liquid element on occasions for the pursuit of a sensational aquatic leisure activity characterised by its essential components, which are:

- A preferably inflatable structure (fig. 1)(1), elongated uniquely in a principal forwards direction perpendicular to the direction of movement,
- At least two elongated inflatable secondary structures (2), which interlock on the internal side of the front structure with one of the extremities of the secondary structures (2) to the front structure (1), without interlocking to the closed extremities of the front structure, which emerge from the sides.
- At least one elongated inflatable or non-inflatable auxiliary structure (3)(3_1)(3_2) with a transversal section inferior to those of the secondary structures (2), linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy, the auxiliary structure(s) being able to be optionally juxtaposed together in groups to link the secondary structures.
- A means for the passenger or passengers to hold on by (5).

- The secondary (2) and auxiliary structures (3)(3_1)(3_2), lying parallel to each other in the nautical device's principal direction of movement, and being approximately perpendicular to the principal direction of the front structure (1), the secondary structures (2) and the auxiliary structures (3)(3_1)(3_2) not being linked by a rear structure.

According to the special construction method – the front structure (1) is equipped on its lower part, in particular, the floatation line, with a towing attachment (fig. 1)(6) to facilitate the lifting of the front of the nautical device when towed,

According to the special construction method – towing is made possible by means of at least two attachment points fixed to the front structure (1), in alignment with the secondary structures (2) relative to the direction of movement.

According to the special construction method – the towing attachments (6) comprise at least two towing elements linked to a central point on the external forward part of the nautical device, which is itself linked to a towing element linked to the towing boat.

According to the special construction method – the front structure (1) presents an appearance approximately semicircular or delta-wing shaped with the extremities closed, the front structure (1) emerging approximately towards the rear and/or the side,

According to the special construction method – the front structure (1) would appear to be approximately semicircular or delta wing shaped, comprising at least two straight segments linked together with the closed extremities of the front structure (1), emerging approximately towards the rear and/or to the side.

- An inflatable structure (1) elongated uniquely in a principal forward direction, perpendicular to the direction of movement.
- An elongated inflatable secondary structure (2) which interlocks on the inner side of the front structure with one of the extremities of the secondary structures (2) to the front structure (1), without interlocking to the closed extremities of the frontal structure, which emerge from the sides.
- Two elongated inflatable auxiliary structures (3)(3_1), with a transverse section inferior to those of the secondary structures (2), linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy.
- A method for the passenger or passengers to hold on with, in particular, straps and/or foot chocks.
- The secondary and auxiliary structures, lying parallel to each other in the nautical device's principal direction of movement and being approximately perpendicular to the principal direction of the front structure (1), the secondary structure (2) and the auxiliary structures (3)(3_1)(3_2) not being linked by a rear structure.
– the front structure (1) appears approximately semicircular or delta-wing shaped, with the extremities closed, the front structure (1) emerging approximately towards the rear and/or the side.

Towing attachments (6), in particular, under the floatation line, a supple lateral skirt (7) is fixed to the front structure (1) on either side of the nautical device, markedly triangular in shape, linking the sides of the front structure (1) to the auxiliary structures (3)(3_1).

According to the special construction method – the entire device is composed of hollow or solid rigid structures made, for example, from one of the following materials: plastic, reinforced fibreglass resin, composite material and others.
According to the special construction method – the entire device is composed of inflatable structures made from supple or watertight materials, for example, from one of the following materials: rubber, PVC, Hypalon neoprene and others.

According to the special construction method – moreover, the nautical device comprises of a supple lateral skirt (7) along each side, markedly triangular in shape, to link the sides of the front structure (1) to the auxiliary structures (3_1)(3_2), or to the most external lateral secondary ones (2).

According to the special construction method – the various different inflatable structures terminate in unlinked extremities with an approximately conical, semi-spherical or ovoid form.

- Moreover, the nautical device comprises a method for the passenger or passengers to hold on with, in particular, straps and/or foot chocks.

According to the special construction method - the nautical device comprises a method for the passenger or passengers to stand upright, lie down, sit or sit astride the secondary structures.

According to the special construction method – the nautical device, characteristically composed of at least two secondary structures (fig. 2)(2), linked by at least one auxiliary structure (fig. 2)(3), distinctively flat, with a method of directional control for the nautical device, in particular and typically a cord, (12) fixed to each side (13) of the front structure (1) to steer the nautical device by at least one passenger, typically standing upright.

According to the special construction method - the nautical device, according to the invention, characteristically comprises three secondary structures (2), the central secondary structure being linked at one end and the other by a auxiliary inflatable structure, the two secondary structures on either side of the central secondary structure being joined between each other, the rear part, by lengths of structures forming triangular profiles extending towards the rear, the method for passengers to hold on being situated principally on the secondary structures.

According to the special construction method – the front of the towable non-motorised nautical device lifts up when towed and leaves the liquid element occasionally in the pursuit of a sensational aquatic sport, a leisure activity, characterised essentially by:

According to the special construction method - at least one of the auxiliary structures (3)(3_1)(3_2) is made from supple or watertight materials, for example: rubber, PVC, Hypalon neoprene. Special techniques have been elaborated in order to allow firstly:
- incorporation of perpendicular structures (2) in the front structure (1),
- secondly, the construction of the front structure (1).

According to the special construction method – each perpendicular structure (2) can accommodate one or several passengers sitting or standing one behind the other or side by side.

According to the special construction method – at each side of the perpendicular structures (2), one or several small intermediary structures (3)(3_1)(3_2) can be used as foot rests and stabilisers while ensuring better buoyancy for the nautical device.

According to the special construction method – the different inflatable structures' extremities are cone-shaped or of any other shape they may be terminated in.

According to the special construction method – straps or any other system can be fixed in any useful place on the nautical device in order to improve the passenger or passengers foothold.

According to the special construction method – the different structures are interlocked together either by adhesives and/or welding and/or by sewing. The inflatable structures can incorporate (an) independent compartment(s) to increase safety; regarding the question of submergibility, inflatable secondary structures can be interlocked with the front structure by inserting one extremity into the front structure with fasteners or by adhesives and/or welding and/or by sewing.

Figure 1 represents the nautical device in perspective
Figure 2 represents a variation of the nautical device seen from above
Figure 3 represents a variation of the nautical device seen in perspective.

Claims

1) Towable non-motorised nautical device whose front part lifts when towed and leaves the liquid element occasionally for the pursuit of a sensational aquatic leisure activity, characterised by its essential components, which are:

- An inflatable structure (fig. 1)(1), preferably elongated, uniquely in the forward principal direction perpendicular to the direction of movement.
- At least two elongated inflatable secondary structures (2) interlocked to the internal side of the front structure by one of the extremities of the secondary structure (2) to the front structure (1) without being interlocked to the closed extremities of the front structure, which emerge on the sides,
- At least one elongated inflatable or non-inflatable auxiliary structure (3)(3_1)(3_2), with a transverse section inferior to those of the secondary structures (2), linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy, the auxiliary structure(s) being able to be optionally juxtaposed together in groups to link the secondary structures.

A method for the passenger or passengers to hold on by (5).

- The secondary (2) and auxiliary structures (3)(3_1)(3_2), lying parallel to each other in the nautical device's principal direction of movement, and being approximately perpendicular to the principal direction of the front structure (1), the secondary structures (2) and the auxiliary structures (3)(3_1)(3_2) not being linked by a rear structure.

2) Nautical device which, according to Claim 1 is characterised by the front structure (1), is equipped on its lower parts, in particular, under the floatation line, of towing attachments (6) to facilitate the lifting of the front of the nautical device when towed.

3) Nautical device which, according to any of the previous claims is characterised in that towing is made possible by means of at least two attachment points fixed to the front structure (1), in alignment with the secondary structures (2) relative to the direction of movement.

4) Nautical device which, according to any one of the previous claims is characterised by a front structure (1) which appears approximately semicircular or delta-wing shaped with the extremities closed, the front structure (1) emerging approximately towards the rear and/or the side.

5) Nautical device which, according to any one of Claims 1 to 4 is characterised by a front structure (1) and would appear to be approximately semicircular or wing-shaped, comprising at least two straight segments linked together with the closed extremities of the front structure (1), emerging approximately towards the rear and/or to the side

6) Nautical device which, according to any of the previous claims, is characterised by comprising, moreover, of a supple lateral skirt (7) along each side, markedly triangular in shape, to link the sides of the front structure (1) to the auxiliary structures (31)(32) or to the most external lateral secondary ones (2).

7) Nautical device which, according to any of the previous claims is characterised by various different inflatable structures terminating in unlinked extremities with an approximately conical, semi-spherical or ovoid form.

8) Nautical device which, according to any of the previous claims is characterised by, moreover, a method for the passenger or passengers to hold on by, in particular, straps and/or foot chocks (11).

9) Nautical device which, according to any of the previous claims, is characterised in that it comprises a method for the passenger or passengers to stand upright, lie down, sit or sit astride on the secondary structure(s).

10) Nautical device which, according to any one of the previous claims, is characterised in that it is comprised of at least two secondary structures (2) linked by at least one auxiliary structure (3), distinctively flat, with a method of directional control for the nautical device, in particular and typically, a cord (12), fixed to each side (13) of the front structure (1), to steer the nautical device by at least one passenger, typically standing upright.

11) Nautical device which, according to any of the previous Claims 1 to 10, is characterised in that it comprises three secondary structures (2), the central secondary structure being linked at one end and the other by an auxiliary inflatable structure, the two secondary structures on either side of the central secondary structure being joined between each other, the rear part by lengths of structures forming triangular profiles

extending towards the rear, the method for passengers to hold on being principally situated on the secondary structures.

12) The front of the towable non-motorised nautical device lifts up when towed and leaves the liquid element occasionally in the pursuit of a sensational aquatic sport, a leisure activity, characterised essentially by:

- An inflatable structure (1) elongated uniquely in a principal front-ward direction perpendicular to the direction of movement. An elongated inflatable secondary structure (2) which interlocks on the internal side of the front structure with one of the extremities of the secondary structure (fig. 3)(2) without interlocking to the closed extremities of the frontal structure which emerge from the sides.
- Two elongated inflatable auxiliary structures (fig. 3)(3)(3_1), with a transverse section inferior to those of the secondary structure (2) linking the secondary structures (2) in a parallel manner in order to provide maximum buoyancy.
– A method for the passenger or passengers of a strap type and/or foot chocks to hold on by.

The secondary and auxiliary structures lying parallel to each other in the nautical device's principal direction of movement and being perpendicular to the principal direction of the front structure (1), the secondary structure (2) and the auxiliary structures (3)(3_1), not being linked by a rear structure

- The front structure (1) appears approximately semicircular or delta-wing shaped with the extremities closed, the front structure (1) emerging approximately towards the rear and/or the side,
- Towing attachments (fig. 1)(6), in particular, under the floatation line fixed to the front structure (fig. 1)(1).
- On either side of the nautical device is a supple lateral skirt (7), markedly triangular in shape, linking the sides of the front structure (1) to the auxiliary structures (3)(3_1).

13) Nautical device which, according to any of the previous Claims 1 to 12, modified in that the entire device consists of hollow or solid rigid structures made, for example, from one of the following materials:

- plastic material, reinforced fibreglass resin, composite materials.